Homework 4

CMSY-199, Fall 2011

The source code and sample output for this assignment must be submitted electronically using the Canvas course website prior to the start of class on Monday, November 7.

1. Add the following member variables to the `Complex` class (Fig. L 8.7) after completing Lab Exercise 3 from chapter 8.

Field	Summary
I	The complex number (0,1)
ONE	The complex number (1,0)
ZERO	The complex number (0,0)

2. Add *set* and *get* methods for the member variables `real` and `imaginary`.

3. Add the following methods to the `Complex` class.

Method Name	Return Type	Description
abs	double	Return the absolute value of a Complex number (aka, modulus or magnitude)
arg	double	Return the argument of a Complex number (aka, phase or angle)
conjugate	Complex	Return the complex conjugate of a Complex number
divide	Complex	Divide two Complex numbers
equals	boolean	Returns true if the real and imaginary parts of obj and `this` are equal
fromPolar	Complex	Create a Complex number from polar form
multiply	Complex	Multiply two Complex numbers
toPolarString	String	Return String representation of a Complex number in Polar Form

4. Modify the `ComplexTest` class (Fig. L 8.8) to test all of the new members in the `Complex` class.